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IN THE UNI1450TED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Chang-Hoi KOO et al. | Examiner: Davis, Cynthia L.

Serial No.: 10/007,185 | Group Art Unit: 2665

Filed: October 19, 2001 | Docket: 678-759 (P10001)

For: **DEVICE AND METHOD FOR TRANSMITTING MULTIMEDIA DATA IN A MOBILE COMMUNICATION SYSTEM** | Dated: May 15, 2006

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

TRANSMITTAL OF APPELLANT'S BRIEF ON APPEAL

Sir:

Enclosed please find APPELLANT'S BRIEF.

Also enclosed is a check in the amount of $500.00 to cover the appeal fee.

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Respectfully submitted,

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Dated: May 15, 2006

Paul J. Farrell

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicants:	Chang-Hoi KOO, et al.	Group Art Unit:	2665
Serial No.:	10/007,185	Examiner:	Davis, Cynthia L.
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P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

REAL PARTY IN INTEREST

The real party in interest is Samsung Electronics Co. Ltd., the assignee of the subject application, having an office at 416, Maetan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, Republic of Korea.

RELATED APPEALS AND INTERFERENCES

To the best of Appellant's knowledge and belief, there are no currently pending related appeals, interferences or judicial proceedings.

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Dated: May 15, 2006

Paul J. Farrell

STATUS OF CLAIMS

Of pending Claims 1-23, Claims 1-23 stand finally rejected. All of the Claims, i.e., 1-23, are the subject of this appeal. A copy of the appealed Claims is contained in the Claims Appendix. For the purposes of this appeal, Claims 2-14 stand or fall together with Claim 1 and Claims 16-23 stand or fall together with Claim 15. Claim 1 is a device claim and Claim 15 is method claim.

STATUS OF AMENDMENTS

The Response filed on August 15, 2005 in which Claims 1 and 15 were amended, has been entered (e.g., see, Office Action, mailed October 11, 2005). There have been no amendments filed subsequent to the amendments to Claims 1 and 15 filed in the August 15, 2005 Response.

SUMMARY OF CLAIMED SUBJECT MATTER

As stated above, the present invention relates to a device and method for providing a data service with different QoSs (Qualities of Services) in a mobile communication system (e.g., see, Specification, Page 1, Lines 20-23 and Page 2, Lines 25-27). The device and method maps TUs (Transport Units) in a MUX layer that provides multimedia data service with different QoSs in a mobile communication system (e.g., see, Specification, Page 2, Line 29 though Page 3, Line 2). The present invention also teaches a protocol structure in which an RLP layer receives data with different QoSs and divides the data into datagrams according to the QoSs and teaches a MUX layer multiplexes the datagrams received from the RLP layer and outputs the multiplexed data

in a TU (Specification, Page 3, Lines 21-30). The device and method then outputs TU blocks with QoSs for the multiplexed TU data (Id.). These various layers (e.g., the RLP layer, the MUX layer, etc.) are shown in FIGs. 1-9 of the present application and have defined locations in a layered architecture. With reference to FIG. 1 and the paragraph beginning at Line 18 of Page 20, it seen that the MUX layer is not part of the Physical Layer (40). Thus, the present application is directed to a device and a method suitable for transmitting multimedia data for a variety of services which one skilled in the art would realize can be offered to a user of a corresponding communication system (e.g., see, paragraph beginning at Line 29, Page 5). Moreover, the device and method according to the present application enable the concurrent transmission of multiple data for a variety of multimedia services to a single user (or a plurality of single users) according to a given protocol (e.g., see, Id., and the paragraph beginning at Line 28, Page 19).

As defined by Claim 1, the present invention is drawn to a protocol implementing device in a mobile communication system. In the mobile communication system, an RLP (Radio Link Protocol) layer receives data with different qualities of service (QoSs) and divides the data into datagrams according to the QoSs. The mobile communication system also includes a MUX (Multiplexing) layer for comparing the length of the datagrams with the length of a transport unit (TU), multiplexing the datagrams received from the RLP layer based on the determination and outputting the multiplexed data in a TU. Furthermore, the mobile communication system has a QCCH (Quality Control Channel) for receiving the multiplexed TU data and outputting TU blocks with the QoSs by puncturing and repeating information added according to the QoSs for the multiplexed

TU.

As defined by Claim 15, the present invention is also drawn to a protocol implementing method in a mobile communication system. The method teaches receiving data with different qualities of service (QoSs) and dividing the data into datagrams according to the QoSs in an RLP (Radio Link Protocol) layer. The method also teaches comparing in a multiplexing (MUX) layer the length of a datagram with the length of a transport unit (TU). The method further teaches multiplexing the datagrams received from the RLP layer based on the comparison and outputting the multiplexed data in a TU in the MUX layer. Moreover, the method teaches receiving the multiplexed TU data and outputting TU blocks with the QoSs by puncturing and repeating information added according to the QoSs for the multiplexed TU in a QCCH (Quality Control Channel).

GROUNDS FOR REJECTION TO BE REVIEWED ON APPEAL

Claims 1, 5, and 7-15 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,477,670 (hereinafter Ahmadvand) in view of U.S. Patent No. 6,788,657 B1 (Freiberg) and U.S. Patent No. 5425,029 (hereinafter Hluchyj). Claim 2 is rejected under 35 U.S.C. §103(a) as being unpatentable over Ahmadvand in view of Freiberg and Hluchyj and further in view of U.S. Patent No. 6,351,460 B1 (hereinafter Tiedmann) and U.S. Patent No. 5,966,377 (hereinafter Murai). Claims 3 and 4 are rejected under 35 U.S.C. §103(a) as being unpatentable over Ahmadvand in view of Freiberg, Hluchyj, Tiedmann, and Murai and further in view of U.S. Patent No. 5,657,325 (hereinafter Lou). Claim 6 is rejected under 35 U.S.C. §103(a) as being

unpatentable over Ahmadvand in view of Freiberg and Hluchyj and further in view of U.S. Patent No. 6,711,182 B1 (hereinafter Gibbs). Claims 16 and 19-21 are rejected under 35 U.S.C. §103(a) as being unpatentable over Ahmadvand in view of Freiberg and Hluchyj and further in view of Murai. Claim 17 is rejected under 35 U.S.C. §103(a) as being unpatentable over Ahmadvand in view of Freiberg, Hluchyj, and Murai and further in view of Lou. Claim 18 is rejected under 35 U.S.C. §103(a) as being unpatentable over Ahmadvand in view of Freiberg, Hluchyj, Lou, and Murai and further in view of Tiedmann. Claim 22 is rejected under 35 U.S.C. §103(a) as being unpatentable over Ahmadvand in view of Freiberg, Hluchyj, and Murai and further in view of Lou. Claim 23 is rejected under 35 U.S.C. §103(a) as being unpatentable over Ahmadvand in view of Freiberg, Hluchyj, and Murai and further in view of Tiedmann.

ARGUMENT

I. THE COMBINATION OF AHMADVAND IN VIEW OF FREIBERG AND HLUCHYJ FAILS TO RENDER OBVIOUS THE INVENTION AS CLAIMED IN CLAIM 1.

Independent Claim 1 is said to be unpatentable over Ahmadvand in view of Freiberg and Hluchyj. (e.g., see, Paragraph 3, at Page 2, of the Office Action dated October 11, 2005)

Ahmadvand relates to a Data Link Layer (DLL) protocol for direct support of

Internet Protocol (IP) networking in the Universal Mobile Telecommunications System (UMTS) (Abstract). Ahmadvand teaches segmenting data for transmitting data with different Quality of Service (QoS) in an RLP (Radio Link Protocol) layer (e.g., see, Abstract, Column 6, Lines 8-12). Furthermore, Ahmadvand teaches the Segmenation, Concatenation and Reassembly (SCR) module (which is part of the radio link control (RLC)) chops the augmented IP packets 46 into smaller size packets, or "sequence frames" 74 and that an important feature of the SCR module is the "concatenation" of short data messages (e.g., see, Column 6, Lines 46-57). Ahmadvand discloses in the case where the amount of data in each IP packet 45 is very small with respect to the size of the RLC frame 77, the SCR module concatenates a number of short messages into one RLC frame 77, and that the RLC frames 77 are delivered to the MAC sublayer 80 to be multiplexed into different transport channels 25 (e.g., see, Column 6, Lines 50-56; Column 7, Lines 4-20; and FIGs. 2, 3 and 4). In other words, Ahmadvand teaches concatenating a number of short messages in the RLC layer (as opposed to a MAC layer) and creating RLC frames. Furthermore, Ahmadvand does not teach a comparison step in a MUX layer. Ahmadvand teaches only RLC (radio link control) frames are multiplexed.

Freiberg relates to a UMTS network in which a single user can transmit or receive a number of services having different transmission power requirements over a single channel and the technique of rate matching is applied, and further discloses a method of determining for each service the number of bits to be punctured or repeated, and comprises deriving for each service the Energy per Bit per Noise density (E_B/N_o) (e.g., see, Abstract).

Hluchyj relates to an early to mid-1990's era fast packet (FP) relay system in a connection-oriented packet communication system having inter-networking switching nodes, which allows packet information transfer from a first type packet switching system to a different second type packet switching system (e.g., see, Column 2, Lines 49-67). In other words, Hluchyj teaches adapting the format of each packet from the first type packet switching network to a format that is portable across the second type packet switching network (e.g., see FIG. 1, step 100; and FIG. 2). Although Hluchyj teaches determining a maximum allowable FP payload length, Hluchyj also teaches that this insures that fast packet to cell mapping is one-to-one [basis] and that no segmentation or reassembly is required, which contrasts with the claims of the present invention.

As stated above, the present invention relates to a device and method for providing a data service with different QoSs (Qualities of Services) in a mobile communication system (e.g., see, Specification, Page 1, Lines 20-23 and Page 2, Lines 25-27). The device and method maps TUs (Transport Units) in a MUX layer that provides multimedia data service with different QoSs in a mobile communication system (e.g., see, Specification, Page 2, Line 29 though Page 3, Line 2). The present invention also teaches a protocol structure in which an RLP layer receives data with different QoSs and divides the data into datagrams according to the QoSs and teaches a MUX layer multiplexes the datagrams received from the RLP layer and outputs the multiplexed data in a TU (Specification, Page 3, Lines 21-30). The device and method then outputs TU blocks with QoSs for the multiplexed TU data (Id.). These various layers (e.g., the RLP

layer, the MUX layer, etc.) are shown in FIGs. 1-9 of the present application and have defined locations in a layered architecture. With reference to FIG. 1 and the paragraph beginning at Line 18 of Page 20, it seen that the MUX layer is not part of the Physical Layer (40). Thus, the present application is directed to a device and a method suitable for transmitting multimedia data for a variety of services which one skilled in the art would realize can be offered to a user of a corresponding communication system (e.g., see, paragraph beginning at Line 29, Page 5). Moreover, the device and method according to the present application enable the concurrent transmission of multiple data for a variety of multimedia services to a single user (or a plurality of single users) according to a given protocol (e.g., see, Id., and the paragraph beginning at Line 28, Page 19).

<u>a. It is the position of the Examiner that the combination of Ahmadvand in view of Freiberg and Hluchyj teaches each and every limitation of Claim 1[1].</u>

Claim 1 recites a MUX (Multiplexing) layer for comparing the length of the datagrams with the length of a transport unit (TU) and multiplexing the datagrams received from the RLP layer based on the comparison and outputting the multiplexed data in a TU in the MUX layer.

However, the combination of Ahmadvand in view of Freiberg and Hluchyj fails to teach or suggest a MUX (Multiplexing) layer for comparing the length of the datagrams with the length of a transport unit (TU) and multiplexing the datagrams received from the RLP layer based on the comparison and outputting the multiplexed data in a TU in the

[1] e.g., see the Office Action dated October 11, 2005, Pages 2-3, Paragraph 3.

MUX layer, as recited in Claim 1.

1. The combination of Ahmadvand in view of Freiberg and Hluchyj fails to teach or suggest a MUX layer for comparing the length of the datagrams with the length of a transport unit (TU).

It is stated by the Examiner that Ahmadvand does not teach or suggest comparing the length of the datagrams with the length of a transport unit (TU) and multiplexing the datagrams into Tus based on the determination (e.g., see, Office Action, dated October 11, 2005, Page 3).

In the rejection, the Examiner respectively equates the datagrams and the TU, as recited in Claim 1, with the RLC frames and the transport channels (which Ahmadvand teaches is the interface of the Physical Layer 20 to the Data Link Layer 30), as taught by Ahmadvand (e.g., see, Office Action, dated October 11, 2005, Page 2; and Ahmadvand Column 5, Lines 11-13). Although Ahmadvand teaches a MAC sublayer (80) (which the Examiner apparently equates with the MUX layer as recited in Claim 1), Ahmadvand is silent on comparing in a multiplexing (MUX) layer the length of the datagrams with the length of a transport unit (TU). To cure this deficiency, the Examiner cites Column 3, Line 55-Column 4, Line 11 of Hluchyj, which references FIG. 3 and describes adapting fast packets (FP) such that the portability of fast packet information is ensured across a cell relay network (e.g., see, Office Action, dated October 11, 2005, pp. 2-3). Although

Hluchyj teaches a determining step (e.g., see, Step A in FIG. 3) which determines a maximum allowable FP payload length according to a given formula and teaches that step A ensures that FP to cell mapping is one-to-one and that no segmentation or reassembly is required, Hluchyj does not teach or suggest a MUX layer for comparing the length of a datagram with the length of a TU, as recited in Claim 1. Moreover, this deficiency is not cured by Freiberg. Additionally, with reference to step A of Hluchyj, it is seen that this step apparently occurs at the physical layer rather then at the MUX layer of the layered architecture of the present application (e.g., see, FIG. 1 of the present application). Thus, the operations which the Examiner states are equivalent (i.e., the comparison step in the MUX layer, as recited in Claim 1, and the determining step A of Hluchyj) apparently occur at different protocol layers in a structured architecture. Additionally, it is unclear how the operations taught by Hluchyj can occur at a MUX level in the layered architecture of the present application (e.g., see, the MUX layer) which is recited by the claims.

2. The combination of Ahmadvand in view of Freiberg and Hluchyj fails to teach or suggest a multiplexing (MUX) layer for comparing the length of a datagram with the length of a transport unit (TU) and multiplexing the datagrams received from the RLP layer based on the comparison.

As discussed above, the combination of Ahmadvand in view of Freiberg and Hluchyj fails to teach or suggest a multiplexing (MUX) layer for comparing the length of the datagrams with the length of a transport unit (TU). Although it is acknowledged that

Ahmadvand does not teach or suggest the recitation of comparing the length of the datagrams with the length of a transport unit (TU) and multiplexing the datagrams into datagrams based on the comparison, the Examiner cites Column 3, Line 55-Column 4, Line 11 of Hluchyj to cure this deficiency (e.g., see, Office Action dated October 11, 2005, Page 4).

With reference to Column 3, Line 55-Column 4, Line 11 of Hluchyj, Hluchyj merely teaches adapting fast packets (FP) such that the portability of fast packet information is ensured across a cell relay network (e.g., see, Office Action, dated October 11, 2005, pp. 2-3). First, as described above, the operations taught by Hluchyj are performed at a transmission level and thus occur at a layer that is different from the MUX layer, as recited in Claim 1. Second, Hluchyj does not teach or suggest an RLP layer. Third, Hluchyj does not teach or suggest multiplexing the datagrams received from the RLP layer based on the comparison. Moreover, these deficiencies are not cured by Freiberg.

Accordingly, for at least the above-stated reasons, the combination of Ahmadvand in view of Freiberg and Hluchyj does not render obvious Claim 1.

II. THE COMBINATION OF AHMADVAND IN VIEW OF FREIBERG AND HLUCHYJ FAILS TO RENDER OBVIOUS THE INVENTION AS CLAIMED IN CLAIM 15.

Independent Claim 15 was said to be rendered unpatentable over Ahmadvand in view of Freiberg and Hluchyj (e.g., see, pp. 3-4, of the Office Action dated October 11, 2005).

As stated above with respect to the rejection of Claim 1, Ahmadvand relates to a Data Link Layer (DLL) protocol for direct support of Internet Protocol (IP) networking in the Universal Mobile Telecommunications System (UMTS) (Abstract). In other words, Ahmadvand teaches segmenting data for transmitting data with different Quality of Service (QoS) in an RLP (Radio Link Protocol) layer (e.g., see, Abstract, Column 6, Lines 8-12). Furthermore, Ahmadvand teaches the Segmenation, Concatenation and Reassembly (SCR) module (which is part of the radio link control (RLC)) chops the augmented IP packets 46 into smaller size packets, or "sequence frames" 74 and that an important feature of the SCR module is the "concatenation" of short data messages (e.g., see, Column 6, lines 46-57). Ahmadvand discloses in the case where the amount of data in each IP packet 45 is very small with respect to the size of the RLC frame 77, the SCR module concatenates a number of short messages into one RLC frame 77, and that the RLC frames 77 are delivered to the MAC sublayer 80 to be multiplexed into different transport channels 25 (e.g., see, Column 6, Lines 50-56; Column 7, Lines 4-20; and FIGs. 2, 3 and 4). In other words, Ahmadvand teaches concatenating a number of short messages in the RLC layer (as opposed to a MAC layer) and creating RLC frames. Furthermore, Ahmadvand does not teach a comparison step in a MUX layer. Ahmadvand teaches only RLC (radio link control) frames are multiplexed.

As stated above with respect to the rejection of Claim 1, Freiberg relates to a

UMTS network in which a single user can transmit or receive a number of services having different transmission power requirements over a single channel and the technique of rate matching is applied, and further discloses a method of determining for each service the number of bits to be punctured or repeated, and comprises deriving for each service the Energy per Bit per Noise density (E_B/N_o) (e.g., see, Abstract).

As stated above with respect to the rejection of Claim 1, Hluchyj relates to an early to mid-1990's era fast packet (FP) relay system in a connection-oriented packet communication system having inter-networking switching nodes, which allows packet information transfer from a first type packet switching system to a different second type packet switching system (e.g., see, Column 2, Lines 49-67). In other words, Hluchyj teaches adapting the format of each packet from the first type packet switching network to a format that is portable across the second type packet switching network (e.g., see FIG. 1, step 100; and FIG. 2). Although Hluchyj teaches determining a maximum allowable FP payload length, Hluchyj also teaches that this insures that fast packet to cell mapping is one-to-one [basis] and that no segmentation or reassembly is required, which contrasts with the claims of the present invention.

As stated above, the present invention relates to a device and method for providing a data service with different QoSs (Qualities of Services) in a mobile communication system (e.g., see, Specification, Page 1, Lines 20-23 and Page 2, Lines 25-27). The device and method maps TUs (Transport Units) in a MUX layer that provides multimedia data service with different QoSs in a mobile communication system

(e.g., see, Specification, Page 2, Line 29 though Page 3, Line 2). The present invention also teaches a protocol structure in which an RLP layer receives data with different QoSs and divides the data into datagrams according to the QoSs and teaches a MUX layer multiplexes the datagrams received from the RLP layer and outputs the multiplexed data in a TU (Specification, Page 3, Lines 21-30). The device and method then outputs TU blocks with QoSs for the multiplexed TU data (Id.). These various layers (e.g., the RLP layer, the MUX layer, etc.) are shown in FIGs. 1-9 of the present application and have defined locations in a layered architecture. With reference to FIG. 1 and the paragraph beginning at Line 18 of Page 20, it seen that the MUX layer is not part of the Physical Layer (40). Thus, the present application is directed to a device and a method suitable for transmitting multimedia data for a variety of services which one skilled in the art would realize can be offered to a user of a corresponding communication system (e.g., see, paragraph beginning at Line 29, Page 5). Moreover, the device and method according to the present application enable the concurrent transmission of multiple data for a variety of multimedia services to a single user (or a plurality of single users) according to a given protocol (e.g., see, Id., and the paragraph beginning at Line 28, Page 19).

a. It is the position of the Examiner that the combination of Ahmadvand in view of Freiberg and Hluchyj teaches each and every limitation of Claim 15[2].

Claim 15 recites comparing in a multiplexing (MUX) layer the length of a datagram with the length of a transport unit (TU), and multiplexing the datagrams received from the RLP layer based on the comparison and outputting the multiplexed

[2] e.g., see the Office Action dated October 11, 2005, pages 2-4, paragraph 3.

data in a TU in the MUX layer.

However, the combination of Ahmadvand in view of Freiberg and Hluchyj fails to teach or suggest comparing in a multiplexing (MUX) layer the length of a datagram with the length of a transport unit (TU), and multiplexing the datagrams received from the RLP layer based on the comparison and outputting the multiplexed data in a TU in the MUX layer, as recited in Claim 15.

1. The combination of Ahmadvand in view of Freiberg and Hluchyj fails to teach or suggest comparing in a multiplexing (MUX) layer the length of a datagram with the length of a transport unit (TU).

It is stated by the Examiner that Ahmadvand does not teach or suggest comparing the length of a datagram with the length of a transport unit (TU) and multiplexing the datagrams into transport units based on the determination (e.g., see, Office Action, dated October 11, 2005, pp. 3 and 4).

For at least the same reasons as set forth above in Section I.a.1., with respect to Claim 1, Ahmadvand in view of Freiberg and Hluchyj fails to teach or suggest comparing in a multiplexing (MUX) layer the length of a datagram with the length of a transport unit (TU) as recited in Claim 15.

2. The combination of Ahmadvand in view of Freiberg and Hluchyj fails to teach or suggest comparing in a multiplexing (MUX) layer the length of a datagram with the length of a transport unit (TU) and multiplexing the datagrams received from the RLP layer based on the comparison.

For at least the same reasons as set forth above in Section I.a.2., with respect to Claim 1, Ahmadvand in view of Freiberg and Hluchyj fails to teach or suggest comparing in a multiplexing (MUX) layer the length of a datagram with the length of a transport unit (TU) and multiplexing the datagrams received from the RLP layer based on the comparison as recited in Claim 15.

Accordingly, for at least the above-stated reasons, the combination of Ahmadvand in view of Freiberg and Hluchyj does not render obvious Claim 15.

CONCLUSION

As the Examiner has failed to make out a prima facie case for an obviousness rejection, the rejection of Claims 1 and 15 must be reversed. It is well settled that in order for a rejection under 35 U.S.C. §103(a) to be appropriate, the claimed invention must be shown to be obvious in view of the prior art as a whole. A claim may be found to be obvious if it is first shown that all of the recitations of a claim are taught in the prior art or are suggested by the prior art. In re Royka, 490 F.2d 981, 985, 180 U.S.P.Q. 580, 583 (C.C.P.A. 1974), cited in M.P.E.P. §2143.03. The Examiner has failed to show that all of the recitations of Claims 1 and 15 are taught or suggested by Ahmadvand in view of Freiberg and Hluchyj. Accordingly, the Examiner has failed to make out a prima facie case for an obviousness rejection.

Independent Claims 1 and 15 are not rendered unpatentable by Ahmadvand in view of Freiberg and Hluchyj. Thus independent Claims 1 and 15 are allowable.

Accordingly, dependent Claims 2-14 and 16-23 are allowable because of their respective dependence upon independent Claims 1 and 15.

Dated: May 15, 2006

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CLAIMS APPENDIX

1. (Previously Presented) A protocol implementing device in a mobile communication system, comprising:

an RLP (Radio Link Protocol) layer for receiving data with different qualities of service (QoSs) and dividing the data into datagrams according to the QoSs;

a MUX (Multiplexing) layer for comparing the length of the datagrams with the length of a transport unit (TU), multiplexing the datagrams received from the RLP layer based on the determination and outputting the multiplexed data in a TU; and

a QCCH (Quality Control Channel) for receiving the multiplexed TU data and outputting TU blocks with the QoSs by puncturing and repeating information added according to the QoSs for the multiplexed TU.

2. (Original) The protocol implementing device of claim 1, further comprising an MQC (Multiple Quality Controller) for performing encoding, redundancy selection, and quality matching on the TU blocks according to the QoSs.

3. (Original) The protocol implementing device of claim 2, wherein the MQC comprises:

an encoder for encoding the TU blocks;

a redundancy selector for providing identical or different redundancy to the coded data depending on whether initial transmission or retransmission is performed; and

a quality matcher (QM) for performing quality matching on the redundancy-added data according to the QoSs of the data.

4. (Original) The protocol implementing device of claim 3, wherein the encoder is a turbo encoder.

5. (Original) The protocol implementing device of claim 1, wherein the RLP layer transmits the datagrams of a variable size to the MUX layer through the logical channels.

6. (Original) The protocol implementing device of claim 1, wherein the RLP layer divides the data into the datagrams depending on the size of the logical channels according to source data rates.

7. (Original) The protocol implementing device of claim 5, wherein the RLP layer adds a priority header to each datagram transmitted on a logical channel according to the QoS of each datagram.

8. (Original) The protocol implementing device of claim 1, wherein if two or more datagrams require the same QoS and one QCCH can accommodate two or more datagrams, the MUX layer multiplexes the datagrams into the one QCCH.

9. (Original) The protocol implementing device of claim 8, wherein if the QCCH transmits two or more datagrams, the MUX layer adds multiplexing header (MH) information to each datagram and transmits the MH-added datagrams on the QCCH.

10. (Original) The protocol implementing device of claim 1, wherein the RLP layer generates at least one RLP instance according to the types of the data and the number of logical channels and outputs the datagrams on the logical channels.

11. (Original) The protocol implementing device of claim 10, wherein the RLP instance outputs the datagrams on one logical channel.

12. (Original) The protocol implementing device of claim 11, wherein the RLP instance adds an RLP ID (Radio Link Protocol Identification) and sequence number to each of the datagrams.

13. (Original) The protocol implementing device of claim 10, wherein the RLP instance generates datagrams according to source data and outputs the datagrams on at least two logical channels.

14. (Original) The protocol implementing device of claim 13, wherein the RLP instance adds sequence number to each datagram transmitted on the logical channels and the sequence number is sequentially assigned according to the priority levels of the logical channels which exist at the same time point.

15. (Previously Presented) A protocol implementing method in a mobile communication system, comprising:

receiving data with different qualities of service (QoSs) and dividing the data into datagrams according to the QoSs in an RLP (Radio Link Protocol) layer;

comparing in a multiplexing (MUX) layer the length of a datagram with the length of a transport unit (TU);

multiplexing the datagrams received from the RLP layer based on the comparison and outputting the multiplexed data in a TU in the MUX Multiplexing layer; and

receiving the multiplexed TU data and outputting TU blocks with the QoSs by puncturing and repeating information added according to the QoSs for the multiplexed TU in a QCCH (Quality Control Channel).

16. (Original) The method of claim 15, wherein the quality matching step comprises the steps of:

encoding the TU data;

providing redundancy to the coded data according to a data rate; and

performing quality matching on the redundant data according to the QoSs of the data.

17. (Original) The method of claim 16, wherein the redundancy is provided differently for initial transmission and retransmission.

18. (Original) The method of claim 16, wherein turbo encoding is used in the encoding step.

19. (Original) The method as claimed in claim 15, the method comprising the steps of:

(1) constructing as many logical channels as service classes and generating as many RLP instances as required, if the transmission packet has at least two service classes;

(2) checking whether datagrams processed by the RLP instances can be assembled if the datagrams are shorter than a TU length;

(3) adding multiplexing headers (MHs) to the datagrams if the assemble is possible and constructing as many QCCHs as required;

(4) transmitting the TU data on the QCCHs according to the priority levels of the TU data; and

(5) performing quality matching on the TU data.

20. (Original) The method of claim 19, further comprising the step of constructing QCCHs after step (5) and returning to step (4), if the datagrams processed by the RLP instances are longer than the TU length or datagram assembly is impossible.

21. (Original) The method of claim 19, wherein step (5) comprises the steps of:

encoding the TU data;

providing redundancy to the coded TU data according to a data rate; and

performing quality matching on the redundant data according to the QoSs of the data.

22. (Original) The method of claim 21, wherein the redundancy is provided differently for initial transmission and retransmission.

23. (Original) The method of claim 19, wherein turbo encoding is used in the encoding step.

EVIDENCE APPENDIX

There is no evidence submitted pursuant to 37 C.F.R. §1.130, §1.131, or §1.132, or entered by the Examiner, and relied upon by the Appellant.

RELATED PROCEEDINGS APPENDIX

There are no known decisions rendered by a court or the Board in any proceeding identified pursuant to paragraph (c)(1)(ii) of 37 C.F.R. §41.37.